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PROGRAM 648B

1 MAY 1962

1129

REPORT ON AGENA D

CONTRACT STATUS

DECLASSIFIED IAW E.O. 12958
REVIEWED
BY
DATE 5/21/97

UNCLASSIFIED

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
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HQ AFSSD
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18 MAY 62

18 May 62

FOREWORD

In conformance with directives received from Hq USAF and in recognition of the urgency attached to the satisfactory accomplishment of the Accelerated Agena D Program, certain extra-ordinary and unusual technical and contractual relationships were established with the Lockheed Missiles and Space Company, Sunnyvale, California. It is the purpose of this paper to record these relationships, to analyze the effectiveness of this unique management approach in light of the results obtained to date, and to present summary conclusions in response to Hq USAF message AFSSV-EQ 85147 dated 4 May 62.

HENRY B. KUCHEMAN, JR.
Colonel, USAF
Program Director

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INTRODUCTION

Early in 1961, increased activity and mounting costs of space programs forced recognition by AFSSD of the necessity for reducing cost and increasing flexibility through standardization of the Agena stage. In order to establish the technical feasibility of this approach, on 30 June 61, the Agena Standardization Study was authorized. The results of this study were favorable and after approval by Hq USAF and DOD, on 25 August 61, the U. S. Air Force awarded Contract AF 04(695)-21 to the Lockheed Missiles and Space Company for the design, development and production of twelve Agena D satellite vehicles, which were to be standard in nature and capable of being used with a minimum degree of change in various satellite programs. First launch was scheduled for January 1963.

On 17 October 61 the Honorable Dr. Joseph V. Charyk, Under Secretary of the Air Force, appointed a special committee chaired by Mr. Clarence L. Johnson to investigate ways and means of providing a more reliable Agena on an accelerated schedule. This committee reviewed the approach proposed under the standard Agena concept and the capacity of the Lockheed Missiles and Space Company for accelerating the approved schedule. It was the conclusion of the committee that a more reliable standard Agena could be produced to support a 28 June 62 first launch provided extraordinary and unusual technical and contractual relationships were established

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and rigorously adhered to by both the Contractor and the Government. The management principles proposed by the Johnson Committee were reviewed by Hq USAF and approved as the basis for program management. In general, these ground rules apply a streamlined AF/Contractor management concept and include a DX priority, reduction in formal procedures, exclusion area in which to perform the work, and extraordinary program management channels. To insure compliance by both parties, these 'ground rules' were actually made a preamble to the contractual work statement for the accelerated Agena D program. For a more detailed description and procedures, refer to Part II of the Abbreviated Program Plan, Program 662A (648B) dated 22 December 61.

The prime objectives of the accelerated Agena D program are:

1. To produce a more reliable standardized basic vehicle capable of performing essential ascent and/or orbital functions derived from common mission requirements of the following programs: 622A, 201, 698AL, 102, 239A, 621A, 698AM, 698AA, Advent,Rebound and Ego in accord with the accelerated schedule and within the allocated budget.

b. To provide a fixed-price procurement source for Agena D vehicles with a production capacity of five vehicles per month.

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I. CONTRACTS

A. Background. In compliance with guidance received from Hq USAF (Reference Hq USAF messages (1) AFSDC-F 82350 dated 30 Nov 61, (2) AFSPM 80799 dated 22 Nov 61, and (3) AFSSC-EQ 90915 dated 5 Jan 62, see Annex A for copies) two separate contracts have been established to accomplish the stated objectives of the accelerated Agena D program. The basic development/engineering contract (AF 04(695)-21) provides the necessary engineering capability and industrial base for the design, development, fabrication, assembly, qualification and test of twelve prototype Agena D flight vehicles with initial delivery to support a June 1962 first launch. This contract also provides as a primary objective, creation of the 'Procurement Package' to permit a fixed price procurement and the creation of a capability for production at the rate of five Agena D vehicles per month. The follow-on production contract (AF 04(695)-68) has been established to support an initial delivery of 39 Agena D vehicles with an initial production rate established as four vehicles per month.

B. Development/Engineering Contract

1. General. The Development/Engineering Contract (AF 04(695)-21) was written originally to support the standard Agena program authorized on 25 August 61. In order to accomplish the objectives of the acceleration, however, the management approach to this contract was completely reoriented on 7 November 61. In essence, the Lockheed Missiles and Space Company in response to Air Force guidance completely reoriented

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the organization responsible for management of the vehicle design, fabrication, assembly and test which was in being to support the production of the Agena B. From the outset, it was recognized that it would be necessary to assign one individual across-the-board responsibility for all phases of the Agena D program. Accordingly, LMSC proposed the creation of what might be considered a company within a company, establishing the Agena D program office having responsibilities delineated on the following chart (Figure 1), and reporting directly to the Vice President and General Manager, Space Systems. This organizational approach was dramatic and effective. As much as any other single factor, it has been responsible for the quick response time which has been demonstrated in the performance of LMSC to date. The basic R&D contract was definitized in such a manner that it encompassed all of the requirements for the complete redesign and qualification of the Agena D vehicle. It authorizes the fabrication and use of development tools such as the Propulsion Test Vehicle which was utilized to proof test the orifice pressurization system and the dual start capability of the rocket engine, the Structural Test Vehicles which were utilized to concurrently qualify the forward equipment rack and aft structure, and the Thermal Test Vehicle which was used to verify environmantal acceptability of the design. Additionally, a Functional Test Mockup and necessary wood mockups were furnished. In addition, twelve prototype flight articles will be produced, qualified, and checked out under this contract, and provision has been made for the production of a Development Test Vehicle. The DTV will serve now and in the future as a means of installing, qualifying, and where

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LMSC ORGANIZATION
PROGRAM 648 B

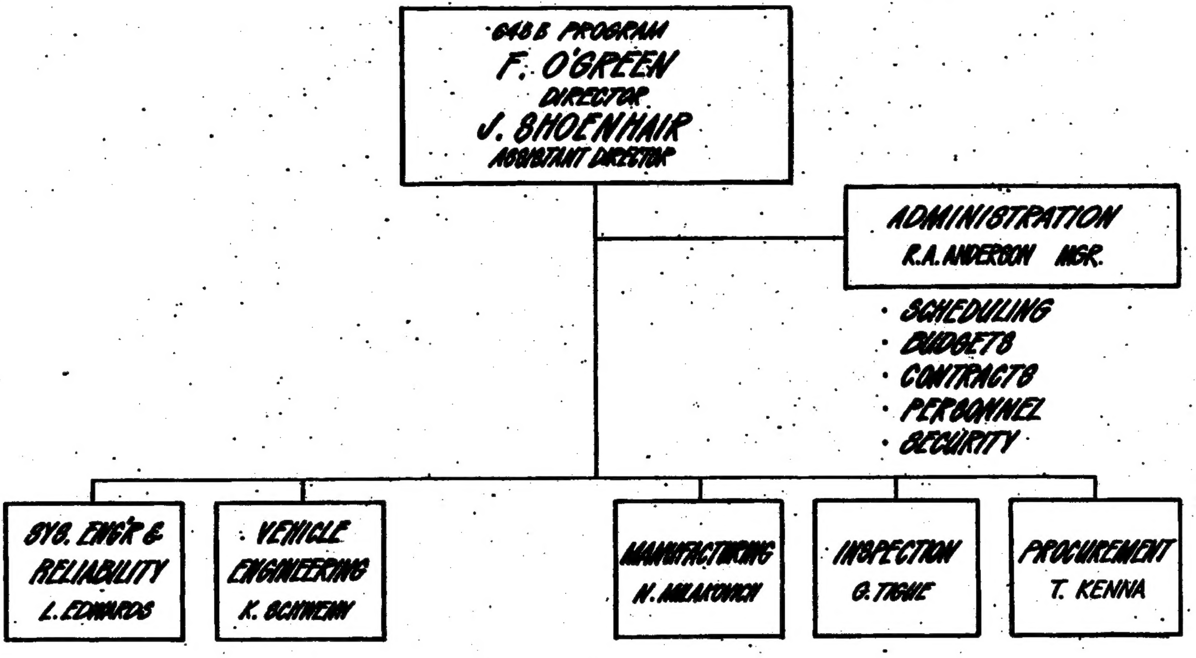


FIG #1

DCASPP (L.A. CALIF.) 62-[illegible]

necessary, hot firing, program peculiar and component improvement modifications in support of all programs utilizing the Agena D stage. In addition to the above, it is a requirement of the -21 contract that a manufacturing production capability be established which will permit production of Agena D vehicles at the rate of five vehicles per month on a fixed price contract.

2. The Procurement Package. In order that the follow-on production contract might be carried out satisfactorily, it has long been recognized by the Agena D Program Office that a clear definitive statement and understanding of what is to be procured under the production contract and the method of operation must be definitely established. With this objective in mind, it has been a primary goal of the Development/Engineering contract to provide the 'procurement package' for the follow-on production contract. This 'procurement package' consists essentially of the Detail Model Specification, Vehicle Acceptance Test Specification, and Engineering Drawings to define the item under procurement, Hard Tooling, and a new LMSC facility (Building 152) to manufacture the vehicle, and Configuration Control to insure recurring quality. To provide better definition, a brief description of these elements of the 'procurement package' follows:

a. Detail Model Specification. This specification will describe the physical and functional design of the systems and the vehicle, and will give estimated performance capability of the vehicle. All assemblies and components to the level of the Agena D Master Breakdown in the Advance Vehicle Description, LMSC A081462, will be identified by their part numbers and by their specification numbers. Also included will be the identification of acceptance test specifications for components to the level of the Agena D Master Breakdown. The Detail Model Specification will specify quality control provisions and will reference the Vehicle Acceptance Test Specification, Item 2 of the 'procurement package'. Appendices will list the optional equipment, MIL-S-8169C, 'Specification, Detail, Guided Missile, Preparation of, " will be used as a guide in the preparation of this document.

b. Vehicle Acceptance Test Specification. This specification prescribes tests to be performed on each vehicle. The tests specified will be those performed on the vehicle in the Agena D systems checkout complex. The tests will validate the vehicles as a unit, and will be used as the basis for acceptance or rejection of the vehicle.

c. Engineering Drawings. The engineering drawings will consist of new Agena D drawings, Agena B drawings which are applicable to Agena D, and subcontractor drawings.

d. Hard Tooling. During the course of the development contract, it was mutually agreed that the tooling which would be ultimately utilized in connection with the production contract would be evolved and employed for the fabrication of the later models of the prototype vehicle. In this manner, it would be possible to transition rapidly into a fixed price production, assuring maintenance of original quality and configuration without the necessity of additional production engineering. In large measure, this action has been accomplished.

e. Building 152. LMSC has under construction at the present time, a structure known as Building 152, financed with corporate funds approximating $6,000,000. It has been planned that this facility will be outfitted as the future industrial facility for the Agena D vehicle. Air Force funds in the amount of [redacted] have been made available through the Agena D development (-21) contract for the necessary machine tools and equipment to suitably outfit this "Agena factory". Through the creation of this facility, it will be possible for the first time to set up an efficient production line for an orbital stage segregated from other programs and activities at LMSC, Sunnyvale. Cost accounting and price determination will be measurably simplified and this alone should facilitate the fixed price contract price redetermination. Through the combination of segregation of facility and cost accounting, it will be possible from the corporate point of view and that of the Air Force to evolve a more efficient operation and produce the Agena D vehicle at significant savings in unit cost.

3. Incentive Features of the Contract.

a. In conformance with DOD policy, it was established from the outset of the Agena D program, that the research and development phase was to be contracted as a Cost Plus Incentive Fee contract. The guidance received from Hq USAF is shown in outline form on Figure 2 which follows on the succeeding page.

b. The features of the negotiated incentive formula for computation of fee are shown in Figure 3 which follows. Briefly, the fee provisions are:

1. Division of Fee: Equal weight will be given to cost, schedule, and performance (1/3) each.

[redacted]

A like procedure applies to underruns. If the final cost is 5% less than the target price, the Contractor's fee is increased by $31,712, if 10% less, the fee will be increased by $63,428, etc.

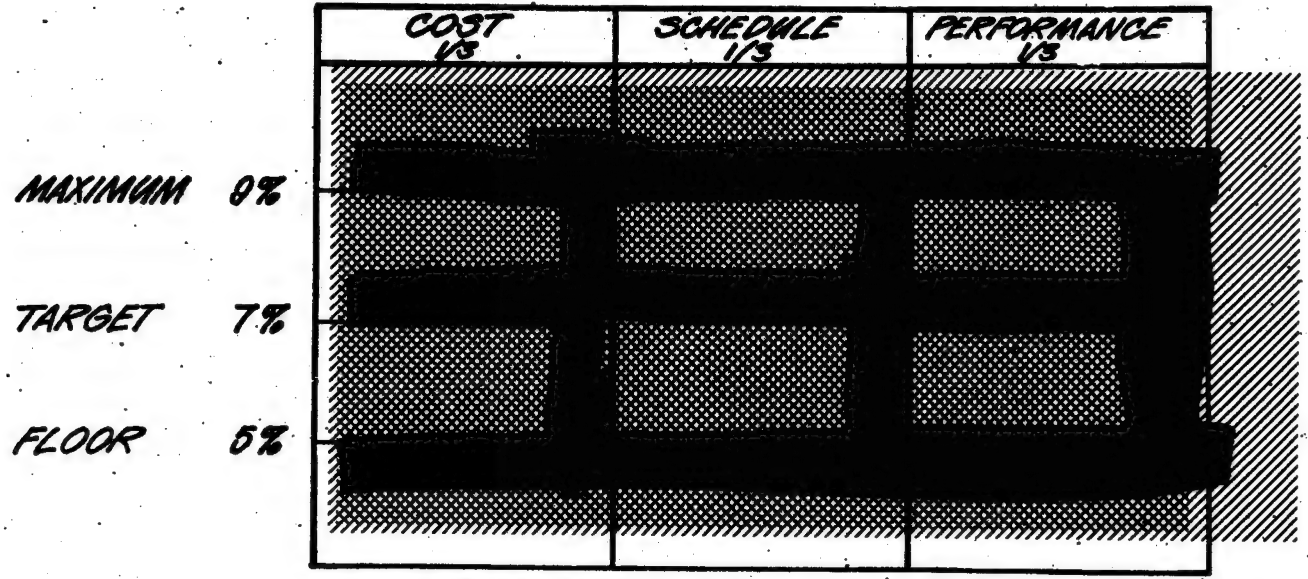
3. Schedule: As to vehicle delivery, the Contractor will receive 9% or [redacted] based upon a target cost of [redacted] if all vehicles are delivered to contract delivery schedule. To permit correction of all reported discrepancies resulting from Air Force Acceptance inspections and to permit delivery of a 'clean' article, the delivery formula provides a two-week grace period without penalty; if

USAF FEE GUIDANCE

- TARGETS
  - ▲ REALISTIC
  - ▲ PLATEAU MAY BE USED
- PROFIT RANGE
  - ▲ EQUAL EXTENT UP AND DOWN
  - ▲ FULL STATUTORY LIMIT
  - ▲ USE LATEST NEGOTIATED FEE AS TARGET
- PERFORMANCE
  - ▲ SPECIFY ESSENTIAL PERFORMANCE
  - ▲ IF POSSIBLE, USE FINAL OR LAUNCH RESULTS
- MEASUREMENT
  - ▲ LIMIT TO A FEW KEY MEANINGFUL POINTS
  - ▲ WHERE TANGIBLE MEASUREMENTS ARE NOT AVAILABLE, AF JUDGMENT WILL APPLY
  - ▲ EQUAL WEIGHT TO COST, DELIVERY, PERFORMANCE
- OTHER CONTRACTS
  - ▲ ASSURE NO DETRIMENTAL EFFECT ON OTHER PROGRAMS
- ACCT SYSTEM
  - ▲ ASSURE SEGREGATION OF COSTS TO PERTINENT CONTRACTS
  - ▲ SYSTEM SHOULD PROVIDE COST DATA USEFUL ON FOLLOW-ON

Fig #2

GRAPHIC PRESENTATION OF FEE PROVISIONS



1ST 5% = ± [redacted]
2ND 5% = ±
3RD 5% = ±
MAX ±

GRACE PERIOD 2 WKS
MAX PENALTY
PER VEH. 5 V/W
V/W INCREMENTS 60
DOWNWARD ONLY

MAX. POINTS	60
PAR	80
FLOOR	0

Fig #3

late more than two weeks, the fee is decreased by .0222% of target cost per week for five weeks to a maximum penalty of .111% of target cost per vehicle. If all twelve vehicles are seven weeks or more late, the fee would be reduced to 5% of target cost of [redacted] A detailed procedure has been evolved to determine the actual date and time of 'final' acceptance and delivery for fee purposes.

4. Performance: One of the most significant and unique features of the negotiated incentive fee relates to the payment of the 1/3 fee based upon performance. The Contractor proposed and the Air Force accepted the principle that the Air Force would unilaterally rate the Contractor's performance. LMSC officials suggested a set of criteria as the basis for rating which were similar but not identical to those finally arrived at through negotiation. It is now agreed that the 1/3 fee based upon performance shall be by a point rating system. If the Contractor's performance is rated the maximum of 60 points, the fee for performance will be based upon 9% of target cost of [redacted] performance rating of 30 points gets the target fee of 7% o[redacted] a performance rating of 0 points gets the minimum rate of 5% or [redacted] An Air Force board composed of representatives of the using programs and the Agena D Program Office will be appointed by the Commander, AFSSD, to rate the Contractor's performance within 30 days of the launch of the twelfth prototype vehicle. The board will use the following criteria: 30 points for (1) Reliability, (2) Program Adaptability, (3) Ease of Checkout; 30 points for (1) Weight of Vehicle, (2) Ascent Performance.

Additionally, it has been mutually agreed between the Contractor and the Agena D Program Office that should failure to qualify all components of the Agena D vehicle prior to flight of each of the prototype vehicles delay the flight of any vehicle, a suitable adjustment of the performance fee will be made. This will be the first time that the Agena vehicle will be contractually required to have all components qualified for flight prior to flight.

4. Cost Management

a. LMSC Internal Budgets. The Air Force has established the incentive features of the contract in an effort to control cost, schedules and insure performance. The effectiveness of the incentive features of the contract pertaining to cost immediately became evident when the Contractor established his Program Cost Accounting System. In order to delegate and fix management responsibility and authority, each of the major department heads, i. e., Systems Engineering and Reliability, Vehicle Engineering, Manufacturing, Inspection, Procurement, and Administration have been given individual operating budgets and overtime allocation. These budgets are reviewed weekly by the LMSC and Air Force Program Directors and are tracked against individual organizational allocations and master program milestones that should permit the Contractor to stay within costs allocated to the program. Experience to date has indicated that this method of high lighting and controlling cost has permitted the Program Directors timely access to information which forewarns of potential overruns. This information has permitted corrective action to be taken in sufficient time to keep expenditures within the budget. It is significant to note that at this point in the program, approximately 60% of the costs have been incurred and program costs are still tracking an expenditure curve which will result in the Contractor completing the contract at or slightly below the target cost established during the negotiation.

b. Agena D Accounting System. In early December 1961 it became necessary for the Agena D Program Office to cause the Contractor to establish a special accounting system for the Agena D program which would satisfy the Air Force Auditor General requirements for the CPIF contract. This has been accomplished to the satisfaction of the Auditor General and should permit the most accurate cost accumulation-vs-vehicle production thus far achieved at LMSC Sunnyvale. The main problem with the pre-Agena D accounting system at LMSC, related to the pool charges which were utilized to fund common or centralized facilities and services. It had been the approved technique to prorate these costs among appropriate customer contracts. In large measure, this accounting system limitation has been overcome by the straight line organization created by LMSC for the Agena D program and the fact that the Program Director has been able to negotiate with the remainder of the Corporation for services provided outside his control. The cost accounting system which has been established was mutually evolved among the Contractor, AFPRO, local representatives of the Auditor General's Office, and the Program Office. The breakdown of the accounting system is in sufficient detail such that the problem of cost analysis for the follow-on contract should be measurably reduced from that of previous development contracts negotiated with the Lockheed Missiles and Space Company.

c. Air Force Auditor General Representative. In order to insure compliance with the Contractor with the agreed procedures and the proper interpretation of the cost accounting system to support the CPIF contract, the Agena D Program Director requested and was assigned early in the program, a full time representative of the Air Force Auditor General's Office as a member of the Agena D staff. This individual has had access to all cost information as it is accrued and is in a position to keep the Auditor General, AFPR, and Program Director informed of the compliance of the Contractor and his current fiscal status at all times. In addition, at the request of the AFPRO, ACO, PCO, and Program Director, he has conducted special investigations and studies as required.

5. Program Control Techniques.

a. In order to avoid the necessity of special reports and briefings by the Contractor to the Air Force Program Office during the course of the accelerated program, the LMSC Program Director extended to the Air Force Program Director and his staff an invitation to attend the weekly internal Lockheed program management meetings. This has become the accepted management tool of both the LMSC and Air Force Program Directors for obtaining a weekly status report on all features of the program.

The 'pipeline meeting', as it is called, is held every Tuesday morning at 0800 hours and consists of a detailed discussion of the following:

1. Action items carried over from previous meetings.
2. Significant accomplishments since last meeting.
3. Problems which have arisen during the reporting period.
4. Items which must be accomplished to stay on schedule and within costs.
5. Review of technical status.
6. Review of subcontractor procurement status.
7. Review of logistic status.
8. Review of qualification program.
9. Financial and manpower status.

The attendees at this meeting consist of the members of the LMSC Program staff through management division level and such additional representation as may be required to adequately answer questions in connection with presentations which are to be given. The milestone technique of program control is utilized with every major segment of the program receiving as detailed review as is required. The presence of the Air Force Program Office at this internal LMSC management meeting has been a unique advantage for the Program staff for it has permitted the Air Force team to participate in the decision making process for all major issues that have arisen to date. Normally the Lockheed Program Director runs the meeting and gives the necessary administrative and technical direction to his staff in a manner that might be considered more appropriate if Air Force representatives were not present. It is common practice for the LMSC staff and the Air Force program team to present technical and administrative issues and differences that require mutual decision for resolution. By this technique, it has been possible for the Air Force Program Director and the LMSC Program Director to resolve differences on the spot and thereby, expedite the program objectives.

6. Technical Management Interface

a. In establishing the accelerated 648B Program, two of the Johnson Committee ground rules had a marked effect on the internal LMSC exchange of technical information and the AF/LMSC technical working relationships. These were as follows:

1. "Engineering personnel shall be located in an enclosed area immediately adjacent to the tooling and manufacturing area."

2. "Technical directive meetings involving large groups shall not be required. Air Force personnel shall work in close liaison with the LMSC Project Engineer so formal meetings are not required."

b. The LMSC Agena D engineering staff was selected from the existing, experienced LMSC engineering personnel. This staff was moved to an enclosed area which required a special pass to obtain access. These measures were taken to permit the proper concentration of effort and to eliminate interruption by non-Agena D personnel. A special liaison group was established to provide information to the various using programs.

c. It was realized that the normal Air Force technical direction and monitoring efforts would be ineffectual and time consuming for such a rapidly moving program. The Johnson Committee rule, 2 above, was written to reqiire a type of modified operation. A team of highly qualified Air Force officers from Air Force Space Systems Division were assigned the responsibility of directing this effort. This team spent a major portion of their time in residence at LMSC (approximately three days per week) and worked very closely with the LMSC engineering staff. Members of the team attended a large number of the technical and policy meetings, assisted in the discussions and in arriving at decisions. By being present during these formative discussions, there were minimum delays in obtaining Air Force approvals. Personal contact with all engineering personnel was fostered. The Air Force had complete access to LMSC internal correspondence, calculations and engineering data which was a substantial assistance in monitoring the development program.

d. Although the 648B Program personnel spent a major portion of their time at LMSC, the program team was normally split between their AFSSD and LMSC offices. To eliminate delays, a direct phone line was installed betweenthe two offices. This provided a rapid means of communication and has proved very effective. Formal correspondence and paperwork has been kept to a minimum. Internal LMSC engineering reports, design reviews and analysis have been used throughout the program. Formal agreements have been recorded as memorandum of understanding or memorandum for the file.

7. Vehicle Acceptance Procedures.

a. The team concept of acceptance as used on Agena Bs has been instituted for the Agena Ds. It is planned that after the model specification, test specification and test procedures have been approved and thoroughly tried out, the acceptance of vehicles will become the responsibility of the Air Force Plant Representative. In the interim, however, the Acceptance Team currently consists of three members of the AFSSD 648B Directorate, one of whom serves as Chairman, two members from the Air Force Plant Representatives Office (Quality Assurance), a member from the Air Force using program office, and a member from the LMSC using Program office.

b. Acceptability of the vehicle for delivery to the Government is determined by review of the test results during the assembly process at the rack and module level, and during final system test, and through physical inspection of the vehicle. A final integrated system test is made prior to acceptance of the vehicle. This test run simulates a representative ascent mission and exercises all equipment to be used in the vehicle. The data is then processed and made available for review of the Acceptance Team. An acceptance data table (Table 5) is completed for ease of review. Also the vehicle log is provided which gives a complete story of the vehicle from beginning of assembly until it is offered to the Air Force for acceptance. After completion of the system test and analysis of the data, the vehicle is thoroughly inspected by the LMSC inspection organization, which is followed by the LMSC engineering staff inspection. After working off all discrepancies, it is turned over to the Air Force for physical inspection. The engineering members of the Acceptance Team and the AFPR (QA) Inspectors then inspect the vehicle.

c. After physical inspection of the vehicle and review of the data, a formal acceptance meeting is held. At that time, an LMSC letter certifying the vehicle's acceptability to applicable design and specification is provided, signed by the LMSC Agena D Program Director. The meeting is held primarily to provide answers to the Air Force on any problems, omissions, discrepancies that have been uncovered. The acceptability of the vehicle to the terms of the contract is determined at this time. Should the vehicle be unacceptable, a detailed listing of discrepancies is formally provided to LMSC for necessary corrective action and subsequent reoffer of the vehicle. The contractual aspects of the incentive fee pertaining to schedules has been formally documented by memorandum between the LMSC Program Director and the Air Force Program Director.

8. Funding. Since the Agena D is a standard launch vehicle which will be utilized by a large number of space programs, originally it was proposed that the development cost, in toto, be funded by reimbursable funding techniques thereby passing along to the using programs, their pro-rated share of this cost. This approach to funding was disapproved by the Department of Defense and recent guidance received from Hq USAF indicates that appropriated funds totaling 39.9M will be used to finance the basic development/engineering (-21) contract. The fund requirement and method of financing is shown on the following table (Table 1).

648B DEVELOPMENT PROGRAM FUNDING

	FY-62	FY-63	TOTAL
DEVELOPMENT PROGRAM:			
~~DEVELOPMENT ENGR.~~	[redacted]	[redacted]	[redacted]
FLIGHT TEST	[redacted]	[redacted]	[redacted]
FINANCING			
EMERGENCY FUNDS	[redacted]	[redacted]	[redacted]
AF REPROGRAMMING	[redacted]	[redacted]	[redacted]
PROGRAM 622A	[redacted]	[redacted]	[redacted]
TOTAL	[redacted]	[redacted]	[redacted]

1014

TABLE 1.

9. Accomplishments. The extraordinary effort placed on this program by both the Contractor and the Air Force along with the streamlined management ground rules has provided the Air Force with a standard second stage space booster seven months earlier than originally scheduled. To date, two vehicles have been accepted by the Government - AD-1 was delivered on schedule and AD-2 was delivered one day ahead of schedule. To date, indications are that both of these vehicles will meet their scheduled launch date and fulfill mission requirements. This redesign of the Agena vehicle utilizing developed Agena B components with state of the art improvements using the module concept has produced a vehicle which should be more reliable and serviceable while performing all mission requirements. This concept has also provided a new testing philosophy which will materially reduce check out time.

C. Production Contract

1. General

a. Contract AF 04(695)-68 is intended to be a production contract, whereunder fixed-price redeterminable procurement will be accomplished on the basis of a procurement package developed under Contract AF 04(695)-21. This procurement package consists of a detailed model specification, an acceptance test specification, and the required vehicle drawings, as described in Paragraph II. B. 2. of this report.

b. It is planned that the management of the -68 contract will be in compliance with standard Air Force production procurement regulations and that although it will not necessarily encompass all of the military specifications associated with standard Air Force procurement, it will satisfy completely the intent of those specifications.

c. Operations under the contract will be conducted primarily in LMSC Building 152, Sunnyvale, California, which will be recognized as a factory for the production of the Agena D vehicle. The Lockheed organization housed therein will be responsible for the accomplishment of that production effort and will carry out all necessary functions associated therewith. The organization will include:

1. A sustaining engineering effort to provide engineering support to the production effort. This will include a value engineering-type effort to provide an improved product from a producibility standpoint. This group will not necessarily have a capability for the accomplishment of design improvement nor will it be authorized to accomplish design change of a development nature.

2. A manufacturing capability for the fabrication, assembly, and checkout of the vehicles, drawing on other Lockheed manufacturing organizations for a portion of the fabrication and assembly effort.

3. A procurement group responsible for the procurement of all purchased parts, vendor items and subcontracted items required

for production, and the related responsibility for all Agena D receiving, stores, and controlled inventory accounts.

4. An inspection function responsible for in-house as well as out-of-house quality control, accomplishing the in-house receiving and production inspection within Building 152. Other LMSC existing organizations will be utilized for inspection in other buildings and at vendor and subcontractor plants. However, specialized out-of-plant inspection problems will be the responsibility of the Agena D inspection function.

5. An administration and controls function responsible for cost estimating, contractual, scheduling, and configuration control functions.

d. This production contract will utilize directly the engineering output of Contract AF 04(695)-21. There will not be a redesign for production required since the AF 04(695)-21 contract will result in documentation of a qualified production configuration. This configuration will be considered a frozen configuration, and configuration control will be enforced. Changes to the configuration will only be made with Air Force concurrence and will require contractual amendment to effect any changes.

e. There will be a counterpart Air Force organization to the LMSC production organization described. This Air Force organization will be production-oriented and, like its LMSC counterpart, divorced from any potential follow-on vehicle development effort. Changes initiated by any organization, Air Force or Lockheed, will be processed through the Air Force production organization. It is expected that changes to the Agena D will be incorporated on the basis of qualified designs and completed drawings. These changes will be programmed on an orderly basis into the production line, in order that normal flow can be maintained and the learning associated with this flow can be maximized. In those cases where changes are requested which cannot be accomplished on the desired vehicle because of its position in the production line, it is expected that the changes thereto may be accomplished after USAF acceptance. By this means, flexibility required by the major program missions can be maintained, and the desired minimum cost posture resulting from the Agena D production effort can be realized.

f. Once the basic vehicle production flow has been established and a degree of certainty has been accomplished as to its continuance, it then appears appropriate for LMSC and the Air Force to consider extension of the Agena D concept to include optionals and perhaps program peculiars in the production flow. It is necessary that such an inclusion be based on firm, qualified designs and the initiation of such effort be based on sound and careful planning to guarantee the continuance of an optimized plan from production to launch.

2. Configuration Control

a. One of the basic philosophies of the Agena D program is the standardization of components and structures for which a singleness of functional design prevails among the Agena users. As stated above, the Agena configuration will be established and frozen under the -21 contract. From this baseline position, Agena D vehicles will be procured on a fixed price basis. It follows then that changes must be kept to a minimum -- configuration must be controlled.

b. In connection with this function, configuration control procedures have and will be established covering Design Change and Engineering Release Controls which meet the requirements of Configuration Accountability (AFBM Exhibit 61-82) under the AF 04(695)-68 contract. Implementation of these controls will be divided into two phases: Pre-Baseline Configuration Accounting and Post-Baseline Configuration Control.

c. With respect to the first phase, Pre-Baseline Configuration Accounting, there has been established:

1. A LMSC Design Change Committee to program, serialize, control, and release all changes considered within the scope of Contract -68 that originate on Contract -21 through Serial AD-9, which will not require formal Air Force approval until final configuration control has been established at the 'frozen' baseline for Contract -68.

2. An Engineering Release Center which is responsible for the release of all drawings, maintenance of drawing status records, preparation of complete parts lists, and the impounding of all specifications and drawing vellums (vendor and subcontractors included) affecting vehicles on Contract -68.

3. Design approval and change control procedures for subcontractors who will be required to submit design drawings and

associated design documentation prior to delivery of hardware, at which time the subcontractor design will be frozen and reproducibles of the documentation impounded. All such documentation will be prior-approved by Engineering and represent the basic design which cannot be subsequently changed by the subcontractor without prior LMSC/AF concurrence.

4. Controls to comply with management policy directive that designates AD-9 as the last of the pre-baseline vehicles on which design changes may be made effective. The majority of design changes made on the prototype vehicles through the AD-9 change freeze point, will automatically be applicable to vehicles on the Contract -68 (AD-13 and up) and these will be recorded and programmed by the Design Change Committee to determine impact on cost and schedules plus ensuring configuration accounting control continuity.

5. A policy that during the pre-baseline period, and extending through the USAF acceptance of AD-12, requests for change approval will be confined to those changes which may be interpreted as being outside the scope of the contract. All changes of this type will be submitted to the Air Force through the ECP procedure described in Paragraph e, below.

d. In connection with post-baseline configuration control:

1. At the time the 'frozen' configuration baseline is established a detailed configuration status record will have been completed and will be provided to the Air Force.

2. All proposed design changes subsequent to the 'frozen' configuration baseline will be submitted by Engineering to the LMSC Design Change Committee for processing and/or serialization, designated as either Class I or Class II in conformance with established procedures. All proposed changes will be submitted to the Air Force by the ECP procedure described in Paragraph e, below.

3. Design changes will be incorporated only at lot break points unless effectivity at other than lot breaks has been directed by the Air Force Agena D Program Director.

e. All changes described in c 5 and d 3, above, will be submitted to the Air Force as follows:

1. The LMSC Design Change Committee will forward the original copy of an ECP for all Class I changes to the LMSC AFPRO. Simultaneously, copies will be forwarded to the AFSSD Agena D Program Office. The AFPRO will evaluate the ECP and forward comments and/or recommendations to the SSD Agena D Program Office within five working days. The Advance copies of the Agena D ECP's will be received at AFSSD by the Chairman of the AFSSD Agena D Configuration Control Board. The CCB is comprised of representatives appointed from the Agena D Program Office and user program offices. The procedure for action within AFSSD will be to the discretion of the CCB Chairman; i.e., the Chairman may approve the changes upon the recommendation of the Agena D technical staff, or he may require a formal CCB deliberation

with or without AFPRO comments. In any case, proper documentation will be maintained by the CCB Recorder. On a routine ECP, either a letter of disapproval would be provided to the AFPRO with an information copy to the Contractor, or a CCN or other type contractual document would be provided to the Contractor with an information copy to the AFPRO. Emergency ECPs, which require TWX or phone call submittal, will be fully coordinated with the AFPRO.

2. Class II changes will be submitted by the Contractor only to the AFPRO. The AFPRO will review and evaluate and will notify the Contractor, in writing, or approval or disapproval with information copy to the AFSSD Agena Office.

3. Logistics and Maintenance of Spare Parts

a. The LMSC Central Logistics Organization will provide logistic support for the -68 contract. This support activity is outlined below:

1. Basic Spares: Spares required to support the basic vehicle during program assembly and at launch bases will be procured and delivered to the Logistics Storage and Distribution System by exhibit to the Contract -68. Provisioning action will be continued by AFSSD Program Office as needed under the contract.

A separate CPFF Logistics Services Contract will be established to provide depot level repair parts and labor to support the repair of Agena D equipment which fails during program assembly and at launch bases after USAF acceptance. Storerooms, disbursements, in-storage maintenance, and inventory control work will be supported by the using program logistics pool in which the Contract -68 does not share.

2. Basic Vehicles: Contract -68 will deliver vehicles on a dolly ready for transportation to Building 152 storage area, or alternately, on a transporter, ready for highway transportation. Storage dollies, other storage equipment, and in-storage labor and material will be provided by the separate CPFF Logistics Services Contract. Transporters and other highway transportation equipment will be provided by the using program.

Vehicle handling rings, patch panel test tools, and other equipment that is normally delivered with Agena D vehicles, have been provided under the -21 contract. That contract will also provide sixteen guidance module shipping containers. The using program Logistics Pool will be responsible for returning these items expeditiously.

3. Optional Equipment: The above provisions apply to optional equipment; however, there are no optional equipment items supplied under Contract -21.

4. Program Peculiar Equipment: Program Peculiar Equipment are the responsibility of the using program and are not provided for under either the -21 or -68 contract.

4. **Funding.** Since the end product of the Production (-68) contract is a saleable product which must subsequently be augmented with program peculiar payloads, etc., before it can serve its intended purpose, it is currently planned to fund this contract with reimbursable funds. By this technique a stable production rate can be established, lot buys at a fixed price negotiated and the maximum benefit of the standardized configuration realized. Based on the directed 39-vehicle buy and assuming a continued production at the rate of four vehicles per month, the fiscal requirements for the Production (-68) Contract are shown below:

648B PRODUCTION FUNDING REQUIREMENTS

	FY-62	FY-63	TOTAL
FOLLOW-ON CONTRACT (-68):			
Long Lead Procurement	[redacted]	[redacted]	[redacted]
Follow-on Procurement	[redacted]	[redacted]	[redacted]
TOTAL	[redacted]	[redacted]	[redacted]

TABLE 2.

D. Component Improvement Contract.

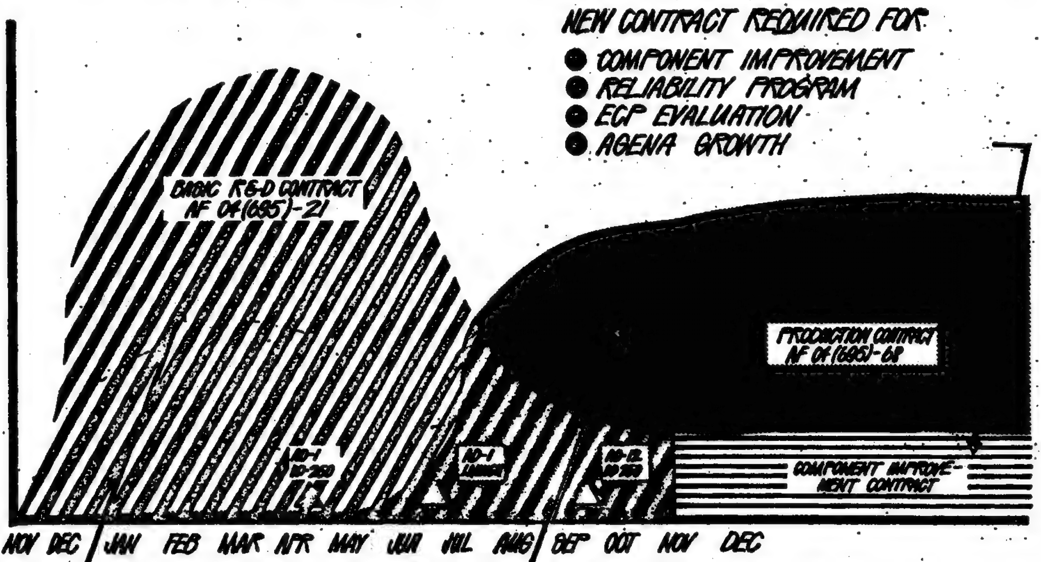
1. How it relates to the -21 and -68 contracts. As stated above in Section I, the -21 contract provided twelve vehicles, but more important it provided for the technical effort necessary for the redesign, development and qualifying of the Agena into a standard ascent vehicle -- the Agena D.

The technical effort under the -21 contract has already been significantly reduced and will be completely phased out by November 1962. Inasmuch as the -68 contract buys "Chinese copies" of the Agena D developed under the -21 contract, no provision for further redesign and development will be provided under the -68 contract. In fact, it has been specifically excluded in an attempt to preclude changes and increase reliability and reduce vehicle cost. Figure 4 (next page) shows graphically how the production build up occurs concurrently with the development effort under the basic contract. It also clearly depicts the engineering void which will occur in the LMSC Agena D organization if all engineering effort is allowed to be terminated at the conclusion of the development/engineering (-21) contract on 30 November 62. It is recognized that deficiencies will be discovered for which additional engineering effort and possibly redesign will be required; state-of-art advancements must be adapted to the Agena D and qualified prior to being incorporated into the Agena D production. This is where the "Follow-on R&D" or component improvement contract fits into the Agena plan. An appropriate level of effort will be provided under this contract to maintain the required level of engineering support to the using programs.

2. Why We Need It.

a. The objective of the component improvement program is to provide improved reliability, producibility, mission adaptability and serviceability of the standard Agena D. Essentially, the Agena D

AGENA "D" DEVELOPMENT/PROCUREMENT PHASING PLAN



BASIC CONTRACT PROVIDES
- PTA, TTV, STV, MOCKUPS, DTV
- 12 FLIGHT VEHICLES
- PRODUCTION PACKAGE
  - DRAWINGS
  - MODEL SPECS
  - ACCEPTANCE PROCEDURES

PRODUCTION CONTRACT PROVIDES
- PRODUCTION RATE AT 5 VEHICLES/MONTH
- CONFIGURATION CONTROL
- FIXED PRICE CONTRACT

Fig. #4

USAFPP (L.A. CALIF.) 62-12301

is a production version of the Agena B. Most of its components are the same or very slightly modified components used in the Agena B. In order to meet the accelerated schedule, it was not possible to provide for many modest component improvements that were known to be needed if the design goal of 90% reliability as an ascent vehicle is to be assured. The major design effort was completed in approximately a six-week period. Component improvements which will enhance overall Agena D reliability have 16-18 month development lead times associated with their availability.

b. Many of the major components were designed in the period 1958 to 1960 and are obsolete. Current state-of-the-art can provide considerable increase in reliability through the reduction in piece parts, improved components and high reliability piece parts and improved manufacturing technique. Some of the components have interim fixes that have been incorporated due to flight failures or changing requirements. Components need to be redesigned to simplify the items, reduce their cost and improve their reliability.

c. Many items are currently critical life items. These items should not be used on a long term basis for a vehicle which will be used in so many programs.

d. The program flexibility that has been incorporated in the Agena D has been accomplished through the ingenuity of the designers which accepts the limitations imposed by state-of-the-art hardware. Design reviews and current studies indicate greater flexibility can be incorporated.

in the Agena D by certain component improvements which will also improve reliability and provide greater simplicity.

e. Additionally, in order to establish a proper contractual interface with LMSC for the industrial base which will support the vehicle engineering effort supporting all space programs, the AFSSD requested that funds necessary to support the Development Test Laboratory, Santa Cruz Test Base, vehicle reliability program, etc., be consolidated in to Agena D line item for FY-63 and administered by the AFSSD Agena Program Office. Through this means all proposed vehicle change requirements can be funnelled through one responsible Air Force agency, controlled by one contract and the benefits of the standard vehicle concept can be better preserved.

3. What It Buys

a. A look at the projected Agena D usage indicates large scale requirements for the foreseeable future. Considering that an Agena launch, including booster and payload, will cost 5 to 10 millions of dollars, an extensive, aggressive reliability program appears to be an absolute necessity. Such a program will be supported.

b. In the current development contract study efforts are underway to determine the optimum component improvement program. The following items currently appear to be the component improvement items:

1. Horizon Sensor MOD III
2. Velocity Meter
3. Inertial Reference Package

4. Solid State Programmer
5. Flight Control Electronics and J Boxes
6. 400 Cycle 3Ø Inverter
7. DC-DC Converter
8. Primary Battery
9. Yaw Attitude Indicator
10. Electro Explosive Device
11. EED Radiation Effects

c. The detail justifications for these items were submitted in the Abridged Package, 648B - Agena D Development Plan, dated 2 April 62.

4. Funding. It is understood that the AFSSD recommendation that [redacted]f FY-63 appropriated funds be provided to support the above described effort was approved by Hq AFSC and awaits necessary action in Hq USAF. This request for funds should be combined with the requirement for [redacted] (See I-B-8) required to complete the development/engineering (-21) contract to provide FY-63 appropriated funds for the Agena D line item totalling [redacted]

II. SUMMARY CONCLUSIONS. This portion of the report is submitted in direct response to Mr. Rubel's request for "a brief summary statement of unique accomplishments and lessons learned to date, both good and bad" -- from the Agena D method of contracting and conducting program management.

A. Unique Accomplishments. Following is a listing of significant 'firsts' which will be accomplished under the Agena D contracts:

1. First CPIF contract between LMSC and the Air Force.

2. First CPIF contract to be negotiated in which the performance fee aspects are adjudged unilaterally by a board of Air Force officers upon completion of the flight test program.

3. First AFSSD procurement of spares to a definitive list.

4. First development program in which all components will have been formally qualified for flight before first flight.

5. First 'procurement package' for a space vehicle.

6. First program to incorporate semi-automatic checkout equipment in system test.

7. First 'fixed price' procurement of a space vehicle.

8. First formal Configuration Control Board established for a space program.

B. Lessons Learned. The following may be cited as lessons learned to date through the CPIF development/engineering contract:

1. The incentive features of the contract coupled with the willing acceptance of the challenge of the accelerated schedule by the Contractor, in large measure have been responsible for the high motivation and unusual productivity of the Agena D program.

2. Without question, the incentive features of the contract have contributed to increased emphasis on cost control by the Contractor and resulted in all scheduled deliveries being met thus far.

3. The reimbursable concept of funding the production contracts for boosters and stages is highly endorsed for it permits an orderly

production flow to be established, economical lot buys and fixed price contracts to be negotiated, configuration control to be effectively exercised, costs to be held down and, in general, better management to be exercised.

4. The paradox of the relaxed formal documentation requirements and "skunk-works" approach of the accelerated program to the stringent controls necessary for effective management of a CPIF contract make it difficult for the Air Force Program Director to satisfy both objectives without compromise. In large measure, through the close working relationship and cooperation of both parties, it is believed that this has been accomplished.

5. Future CPIF contracts would be facilitated - in the negotiation phase - through the use of a more definitive work statement than was prepared for the Agena D program.

6. The accounting system evolved for the CPIF contract indirectly should result in more accurate costing for all LMSC programs.

7. It has been established that through a close working relationship with the Contractor, it is possible to eliminate the requirement for many reports, meetings, etc., and, in general, reduce documentation. This has not been accomplished without personal inconvenience to members of the Air Force program team who routinely spend three to five days per week on TDY. Should other high priority programs adopt the Agena D approach, it is recommended that PCS be considered as a possible means of eliminating this objectionable aspect.

8. Configuration Control is a mandatory prerequisite to effective standardization of design and should enhance reliability and quality control.

C. Contractor's Evaluation. In order to completely document the Advantages and Disadvantages of the Agena D method of operation, the LMSC Program Director was invited to submit his comments for inclusion in this report. A reproduction of his letter reply follows.

Lockheed
MISSILES
& SPACE
COMPANY

8 May 1962

To: Henry B. Kucheman, Jr.
Colonel, USAF
System Program Director
for Agena

Subject: Discussion of Advantages and Disadvantages of the Agena D Method of Operation

In response to your verbal request, I have listed below my personal opinion of the advantages and disadvantages of operating a program under the ground rules that we have established for Agena D. Sufficient time has elapsed so that a reasonable objective view can be taken of the gains made under this method of operation and some of the trouble areas that might result. While these are my own personal views, I believe they also reflect the opinions of the majority of my staff.

ADVANTAGES

One of the prime advantages of operating as we have, is the speed with which a given job can be accomplished. I am convinced that we could not have delivered AD-1 on schedule operating under previous ground rules.

Accomplishing a given task in a shorter time period generally means a savings of total dollars even though the rate of expenditure may be higher.

Providing the proper team is assembled in the first place, fewer people are required to do a given job because of the short communication channels, the personal identification with the task at hand, and the reduction in paperwork. There is less lost motion and better appreciation of each others problems experienced by the various organizational elements such as manufacturing, engineering, purchasing, and controls.

The "skunk works" approach places great emphasis on the ability of the designer to follow a project from inception to completion. It allows for very fast reaction when changes or corrective action are required.

Because of the rapid pace, mistakes are learned early, and corrective action can be taken before a pipeline is full of fabricated parts.

The hard-line organizational concept of Manufacturing reporting directly to the Agena D Director has permitted changes in test philosophy which, in effect, backs up responsibility to a point where it is most effective. It also has permitted the man in the shop or test laboratory faster and more direct communication with the designers.

The team approach has permitted more direct control of cost elements and faster and more direct budget reporting, insuring rapid management attention on potential over-run areas.

One of the principal savings has resulted from the elimination of unnecessary reports, briefings for casual visitors, duplicative technical meetings, etc.

DISADVANTAGES

Good personnel are a prerequisite to operating under the Agena D ground rules. This means that some penalty has to be paid in other areas when key people are assembled in such a task force. This also means that only a limited number of programs could profitably be pursued on this basis at any one time.

The isolation of the group by means of key card access tends to cause some resentment with other organizations and, to some extent, hinders communication to the using programs in various elements of the SSD Organization. The necessity to put a large number of dollars on a single drawing make it more difficult for production to economically break down the various work elements.

The policy of allowing red-line changes to be instigated by the design group during early phases of development make the problem of configuration accounting more difficult. Because of physical isolation of the group support activities, maintenance personnel, plant engineering, and others have difficulty gaining access.

Because of the self-sufficient nature of the operation and the speed with which it has to operate, there is a tendency to duplicate functions previously handled by central organizations.

Since the tempo of an operation such as Agena D requires concurrency of test and manufacture, it is inevitable that design changes will result in scrapping some fabricated materials; however, it is pointed out above that the total savings in time more than offsets this.

F. W. O'Green, Director
Agena D Program
LMSC

APPENDIX

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DE RJEZHQ 1118
ZNR
P 222309Z
FM HQ USAF WASH DC
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INFO RJWZBK/SSD LOS ANGELES CALIF
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23 NOV 1961 04 05

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ACTION ____________
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INFO SSZ

UNCLAS FR AFSPM 80799
REF BRIEFING COL EVANS THIS HQ 17 NOV 61. SUBJECT AGENA B. FOLLOWING PROCUREMENT GUIDELINES WILL PERTAIN. THIS MSG IN SIX PARTS. MATTERS PERTAINING TO ORGANIZATION AND PROGRAM MANAGEMENT ARE SUBJECT OF SEPARATE COMMUNICATION. PART I. DELEGATION OF PROCUREMENT AUTHORITY. THE SPECIAL DELEGATION OF AUTHORITY REQUESTED REFERENCED BRIEFING IS NOT CONSIDERED ESSENTIAL. AFSC PROCUREMENT REVIEW IS CONSIDERED TO BE ADVISABLE. LITTLE DELAY SHOULD ACCRUE THROUGH PROCEDURE PROPOSED BY AFSC DIRECTOR OF PROCUREMENT WHERE ON THE SPOT PROCUREMENT COMMITTEE REVIEW WILL BE MADE WHEN

PAGE TWO RJEZHQ 1118
NECESSARY. PART II. CONTRACT GUIDELINES FOR INCENTIVE CONTRACT (A) TARGETS. TARGETS MUST BE REALISTIC AND MUST BE SET AT AN EARLY POINT IN PERFORMANCE. SUGGEST THAT AF AND CONTRACTOR PAST EXPERIENCE AND LATEST AVAIL DATA BE USED IN SETTING COST AND PERFORMANCE TARGETS. WHERE COST TARGET CANNOT BE SET ON A SPECIFIC DOLLAR THEN A FLAT SPOT OR PLATEAU DOLLAR RANGE MAY BE USED. TARGET FEE WILL APPLY IN FLAT SPOT WITH INCENTIVES APPLYING ABOVE AND BELOW. (B) PROFIT RANGE. RANGE OF PROFITS SHOULD EXTEND IN EQUAL RELATIONSHIP UPWARD AND DOWNWARD FROM THE TARGET FEE AND MAY EXTEND TO THE FULL STATUTORY LIMIT. THE LATEST FEE NEGOTIATED WITH THIS CONTRACTOR ON A MAJOR PROCUREMENT SHOULD BE USED IN NEGOTIATING A TARGET FEE. (C) QUALITY AND PERFORMANCE SPECIFIED MUST BE ESSENTIAL. EXTRAORDINARY QUALITY OR PERFORMANCE MAY EARN INCENTIVE COMPENSATION ONLY IN RELATION TO ITS REAL VALUE TO THE AF. (D) MEASUREMENT. ASSURE ADEQUATE MEANS OF MEASUREMENT. MEASUREMENT ITEMS SHOULD BE THE FEWEST PRACTICAL NUMBER AND SHOULD BE KEY MEANINGFUL POINTS. WHERE NO TANGIBLE MEASUREMENT MEANS EXIST AND JUDGMENT TYPE EVALUATION MUST BE USED, JUDGMENT OF THE AIR FORCE WILL APPLY AND WILL DECIDE. (E) BALANCE OF INCENTIVE FORCES. INCENTIVE ITEMS PRESENTED IN 17 NOV BRIEF INCLUDED COST, DELIVERY AND

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PERFORMANCE. ITEMS SHOULD BE WEIGHTED SO AS TO PROVIDE A BALANCE OF FORCES DESIGNED TO ENCOURAGE THE CONTRACTOR TO REMAIN ON A DESIRED EFFORT COURSE. REFERENCED BRIEFING ALLOCATED 500/0 TO COST AND ONLY 25 PER CENT TO DELIVERY AND PERFORMANCE. IN THIS CASE, CONSIDERING THE IMPORTANCE OF PERFORMANCE AND DELIVERY, IT IS SUGGESTED THAT AN APPROXIMATELY EQUAL SPLIT OF ALL THREE FACTORS WOULD BE MORE NEARLY APPROPRIATE. RELIABILITY CONSIDERATIONS SHOULD BE INCLUDED AND IF AT ALL POSSIBLE FINAL OR LAUNCH RESULTS SHOULD BE INCLUDED. (F) OTHER CONTRACTS. THE CONTRACTOR MUST ASSURE THAT PERFORMANCE STANDARDS ON OTHER DEFENSE CONTRACTS WILL NOT BE DECREASED IN ORDER TO CONCENTRATE ON ACHIEVEMENT OF INCENTIVE PAYMENTS UNDER THIS CONTRACT. PART III. PROFIT LIMITATIONS. ASPR ADMINISTRATIVE LIMITS ON PROFIT ARE WAIVED FOR THIS PROCUREMENT. STATUTORY LIMITS WILL APPLY. PART IV. PERTINENT TERMS OF THE CONTRACT WILL BE REVIEWED BY THIS HQ PRIOR TO FINAL EXECUTION. IT IS SUGGESTED THAT AN APPROPRIATE PRESENTATION BE MADE. ADVISE US SUFFICIENTLY IN ADVANCE TO PERMIT ARRANGEMENTS. PART V. THE ACCOUNTING SYSTEM MUST ASSURE PROPER SEGREGATION AND ALLOCATION OF COSTS TO THE PERTINENT CONTRACT. SUGGEST ACCOUNTING SYSTEM PROVIDE COST DATA WHICH WILL BE USEFUL IN FOLLOW ON

PAGE FOUR RJEZHQ 1118
PROCUREMENTS. PART VI. FACILITIES CONSIDERATIONS: (A) DURING NEGOTIATIONS ASSURE THAT NO ITEMS PROPERLY CHARGEABLE TO FACILITY CONTRACTS ARE INCLUDED IN THE TARGET PRICE OF THE INCENTIVE CONTRACT. (B) AFTER THE INCENTIVE CONTRACT IS ESTABLISHED CONSIDER FACILITY MATTERS SO THAT NO ITEMS ANTICIPATED UNDER THE INCENTIVE CONTRACT ARE CHARGED AGAINST THE FACILITY CONTRACT. (C) NEW FACILITY REQUIREMENTS AND COSTS MUST BE FIRMED UP SOON. LATER FACILITY REQUIREMENTS WHICH CONTRIBUTE TO THIS PROGRAM, ALTHOUGH CHARGED UNDER THE FACILITY CONTRACT, SHOULD BE CONSIDERED IN LIGHT OF THEIR EFFECT ON THE INCENTIVE CONTRACT AND APPROPRIATE ADJUSTMENTS MADE. (D) IN ESTIMATING COST TARGETS ANTICIPATE THE INCREASE EFFICIENCY AND EFFECTIVENESS TO BE PROVIDED BY FACILITIES NOW BEING REQUESTED.
BT
22/2326Z NOV RJEZHQ

[redacted]

RJWZBK
DE RJEZHQ 389
P 301909Z
FM HQ USAF WASH DC
TO RJEZFF/AFSC ANDREWS AFB MD
INFO RJWZBK/SSD LOS ANGELES CALIF
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REC'D
-1 DEC 1961 01 04

ACTION AFBMD
SSZA
1961 NOV 30 PM 5:59
INFO SSZ

S E C R E T FROM AFSDC-F S2350.
REF BRIEFING COL EVANS THIS HQS 17 NOV 61, SUBJECT AGENA D. THIS MESSAGE IN EIGHT PARTS. PART I. PROGRAM DIRECTION CONTAINED IN HQ USAF LTR TO AFSC SUBJECT STANDARDIZED AGENA D SPACE VEHICLE DTD 27 SEP 61 AND HQ USAF LTR TO AFSC, SAME SUBJECT, DTD 26 OCT 61 IS SUPERSEDED BY DIRECTION CONTAINED HEREIN. NO ACTION TO BE TAKEN RELATIVE PROCEDURES CONTAINED IN DDR AND E 4 OCT 61 MEMO ATTACHED ABOVE REF 26 OCT 61 LTR. PART II. PROCUREMENT GUIDELINES WILL BE IN ACCORDANCE WITH HQ USAF (AFSPM) MESSAGE TO AFSC DTD 22 NOV 61. PART III. FOLLOWING ARE PROGRAM GUIDELINES: (A) AGENA D TO BE PHASED INTO

PAGE TWO RJEZHQ 389
DISCOVERER ASAP. (B) AGENA B TO BE USED AS BACK-UP FOR INITIAL AGENA D FOR DISCOVERER TO PROTECT LAUNCH DATES. (C) AGENA D TO BE PHASED INTO ALL NEW PROGRAMS LAUNCHING AFTER 1 JAN 63. (D) AGENA D TO BE PHASED INTO PROJECTS 101B AND 201 ON NEXT VEHICLE ORDER. (E) AGENA D TO BE PHASED INTO PROJECT 102 AFTER INITIAL FOUR VEHICLES. (F) PHASING AGENA D INTO MIDAS TO BE EVALUATED AND RECOMMENDATIONS PRESENTED TO HQ USAF ASAP. (G) INITIAL AGENA DS WILL CARRY DX RATING OF USING PROGRAM. DECISION RE: DX RATING FOR FOLLOW-ON TO BE MADE IMMEDIATE FUTURE. (H) SPECIAL LMSC ENGINEERING SYSTEM TO BE AS DISCUSSED IN VARIOUS MEETINGS. PROGRAM DIRECTOR WILL ESTABLISH DRAWING, SPECIFICATION AND PROCUREMENT DATA REQUIREMENTS. THIS TO BE NOT LESS THAN THAT REQUIRED FOR POSSIBLE FPI CONTRACT IN FUTURE. (I) AN EARLY AND FINAL CONFIGURATION FREEZE TO BE MADE. CHANGES RESULTING FROM DEVELOPMENT OR USING PROGRAMS TO BE DETERMINED AND APPROVED BY AGENA D PROGRAM DIRECTOR AND USING MILITARY PROGRAM DIRECTORS. (J) LMSC ENGINEERS TO BE LOCATED IN SECURE AREAS IMMEDIATELY ADJACENT TO TOOLING AND MANUFACTURING AREA. (K) RAPID DRAWING RELEASE SYSTEM FROM PROJECT ENGINEER'S APPROVAL TO MFG GROUP WILL BE ESTABLISHED. DRAWINGS TO BE SUITABLE FOR USE BY ALTERNATE CONTRACTORS IF REQUIRED. (L) AIR FORCE PROJECT PERSONNEL TO WORK CLOSE ENOUGH TO LMSC PROJECT

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ENGINEER TO PRECLUDE NEED FOR FORMAL MEETINGS. (M) REASONABLE OVERTIME MAY BE USED AS DETERMINED BY LMSC AND APPROVED BY AGENA D PROGRAM DIRECTOR. (N) INTERCHANGEABILITY OF FIRST FOUR VEHICLES MAY BE LIMITED TO MAJOR STRUCTURAL AND EQUIPMENT ITEMS. FINAL DETERMINATION OF CONFIGURATION WILL BE MADE BY AGREEMENT BETWEEN AGENA D PROGRAM DIRECTOR, THE USING MILITARY PROGRAM DIRECTOR AND LMSC. (O) NECESSITY FOR ENGINEERING ANALYSIS REPORTS TO BE DETERMINED BY AGENA D PROGRAM DIRECTOR. (P) QUALIFICATION STANDARDS AND SPECIFICATIONS ARE TO BE DETERMINED AND AGREED TO BETWEEN LMSC, THE AGENA D PROGRAM DIRECTOR AND THE USING MILITARY PROGRAM DIRECTORS. PART IV. (A) AGENA D MANUFACTURING COMPLETION SCHEDULE FOR INITIAL TWELVE VEHICLES - 1962 MARCH (1), APRIL (1), MAY (2), JUNE (2), JULY (2), AUGUST (3), SEPT (1). (B) LAUNCH DATES FOR INITIAL TWELVE AGENA D VEHICLES 1962 JUNE (1), JULY (1), AUGUST (1), SEPT (2), OCT (3), NOV (1), DEC (1); 1963 JAN (1), FEB (1). PART V. FUNDING FOR AGENA D PROGRAM, DISCOVERER PROGRAM AND 4TH DISCOVERER LAUNCH PAD WILL BE COVERED BY SEPARATE COMMUNICATIONS. PART VI. DOCUMENTATION UNDER AFR 80-2 AND AFR 375-4 WILL NOT BE REQUIRED. A PROGRAM PLAN SHOWING MAJOR MILESTONES, SCHEDULES, LAUNCH DATES AND LMSC AND SSD ORGANIZATION AND PROCEDURES WILL BE SUBMITTED TO HQ USAF ATTN: AFSSV-EQ

PAGE FOUR RJEZHQ 389
BY 15 DEC 1961. A BRIEF MONTHLY REPORT SHOWING PROGRESS AND HIGH LIGHTING PROBLEM AREAS WILL BE SUBMITTED TO HQ USAF BEGINNING 1 JAN 1962. PART VII. (A) TOOLING AND MANUFACTURING TEST EQUIPMENT WILL BE PROVIDED FOR PRODUCTION RATE OF 3 TO 5/MONTH. FINAL DECISION ON RATE TO BE MADE AFTER ANALYSIS LMSC RESPONSE TO SSD REQUEST FOR PROPOSAL DUE MID-DECEMBER. (B) ACTUAL PRODUCTION WILL BE PER CONTRACT SCHEDULE. (C) FY-62 AND FY-63 FACILITY REQUIREMENTS FOR INITIAL TWELVE VEHICLE PROGRAM AND SUSTAINING RATE OF 3 TO 5/MONTH WILL BE IDENTIFIED ASAP AND FORWARDED TO HQ USAF. PART VIII. INITIAL CONTRACT WILL INCLUDE STUDY USE AGENA D WITH TITAN III BOOSTER. FUNDS FOR THIS STUDY WILL BE MADE SUBJECT OF A SEPARATE CONTRACTUAL AND FUNDING LIMITATION. RESULTS OF STUDY WILL BE INCLUDED IN TITAN III SYSTEM PACKAGE PROGRAM TO BE SUBMITTED THIS HEADQUARTERS LATE JANUARY 1962.
BT
30/1910Z NOV RJEZHQ
IC 15572

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ANFQ039
PP RJWZBK
DE RJWZKD 64
P 052324Z
FM HQ USAF
TO RJEZFF/AFSC ANDREWS AFB ND
INFO RJWZNF/SSD INGLEWOOD CALIF
RJEDSQ/AFLC WPAFB OHIO
RJESBN/WRAMA ROBINS AFB GA
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—6 JAN 1962 16 44

AFBMD
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SSVX
1962 JAN-5 PM 9:33
INFO SSZ
SSVE

CONFIDENTIAL FROM AFSSV-EQ 90915
ACTION AFSC FOR SCQM. INFO SSD FOR SSDX, WRAMA FOR WRU. REFERENCE IS MADE TO AGENA D PRESENTATION BY COL. KUCHEMAN AT HQ USAF ON 3 JANUARY 1962. THIS MESSAGE IN 7 PARTS. PART I. PROGRAM MANAGEMENT, ORGANIZATION, PRODUCTION PLAN AND FACILITIES PLAN FOR THE BASIC AGENA D ARE CONCURRED IN. PART II. TOOLING, INDUSTRIAL FACILITIES AND MANUFACTURING TEST EQUIPMENT WILL BE PROVIDED FOR PRODUCTION CAPABILITY OF FIVE VEHICLES PER MONTH. YOU ARE AUTHORIZED TO PERMIT LMSC TO SCREEN INDUSTRIAL RESERVE AND PLACE HOLDS IMMEDIATELY. TO MAXIMUM EXTENT POSSIBLE MACHINE TOOLS AND TEST EQUIPMENT

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SHOULD BE OBTAINED FROM THE INDUSTRIAL RESERVE. SUPPLY CONTRACT TERMINATION INVENTORIES SHOULD ALSO BE THOROUGHLY SCREENED FOR USEABLE TEST EQUIPMENT. PART III. PROCUREMENT OF A MAXIMUM QUANTITY OF 39 VEHICLES SCHEDULED AT A RATE NOT TO EXCEED FOUR PER MONTH UNDER THE FOLLOW-ON CONTRACT IS APPROVED. FUNDING FOR NECESSARY LONG LEAD TIME ITEMS WILL BE WITH FY-62 FUNDS. CONTRACTOR COMMITMENTS WILL BE HELD TO A MINIMUM CONSISTENT WITH PROTECTING CONTRACT DELIVERY SCHEDULES. PART IV. INDUSTRIAL FACILITY AND SUPPLY CONTRACT FUNDING AUTHORIZATIONS NECESSARY TO SUPPORT THE ABOVE DIRECTED AGENA D PROGRAM ARE SUBJECTS OF SEPARATE ACTIONS. PART V. VEHICLES ON THE FOLLOW-ON CONTRACT WILL USE THE PRIORITY ASSIGNED TO PROGRAMS USING AGENA D. PART VI. PRESENTATION OF PERTINENT TERMS OF INITIAL CONTRACT AS REQUESTED IN PART IV OF HQ USAF MESSAGE AFSPN TO AFSC DATED 22 NOVEMBER 1961 WILL BE SCHEDULED AT HQ USAF ON 19 JANUARY 1962 AS AGREED IN ABOVE REFERENCED PRESENTATION. PART VII. THIS HQ HAS GREAT RESERVATIONS RELATIVE TO SSD'S PLANS TO HAVE INDIVIDUAL USING PROGRAM OFFICES PROCURE HARDWARE AND SERVICES ASSOCIATED WITH INSTALLATION AND CHECKOUT OF MISSION PECULIAR ITEMS DIRECT FROM LMSC. CONCERN IS THAT HAVING NUMEROUS OFFICES CONTRACTING WITH, AND GIVING DIRECTIONS TO, LMSC WILL NOT PROVIDE

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THE NECESSARY PROGRAM COST CONTROL TO TAKE FULL ADVANTAGE OF THE AGENA D STANDARDIZED CONCEPT. AN ALTERNATE APPROACH WOULD BE TO PLACE RESPONSIBILITY FOR PROCUREMENT OF AGENA MISSION PECULIAR EQUIPMENT AND ASSEMBLY AND CHECKOUT SERVICES UNDER ONE OFFICE AT SSD. SUCH AN ARRANGEMENT IT IS BELIEVED WOULD PLACE THE AIR FORCE IN THE MOST FAVORABLE NEGOTIATING POSITION RELATIVE TO THE CONTRACTOR AND ENHANCE THE AIR FORCE ABILITY TO CONTROL PROGRAM COSTS FOR ALL PROGRAMS. ALSO OF CONCERN IS THE NEED FOR CONTROL OF MODIFICATIONS IN CONNECTION WITH INSTALLATION AND CHECKOUT OF MISSION PECULIAR ITEMS TO INSURE THAT THE BASIC AGENA D STANDARDIZED CONCEPT IS NOT COMPROMISED. IN LIGHT OF THE ABOVE, REQUEST AFSC PRESENT DURING THE 19 JANUARY PRESENTATION AT HQ USAF THE SSD ORGANIZATIONAL ARRANGEMENTS WHICH WILL PROVIDE FOR MAXIMUM COST AND CONFIGURATION CONTROL OF AGENA VEHICLES BY INDIVIDUAL PROGRAM AND COLLECTIVELY FOR ALL PROGRAMS.
BT
05/2329Z JAN RJWZKD

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DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
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